REMARKS

In light of the amendments to the application noted above and remarks to follow, reconsideration and allowance of the above-referenced application are respectfully requested.

Claims 1-38 are pending. Claims 1-14 are the original patent claims and stand unamended. Claims 15-38 are added claims. Claims 15, 19, 23, 27, 30, 33 and 36 are amended herein. Claims 16-18, 20-22, 24-26, 28-29, 31-32, 34-35 and 37-38 stand unamended.

At paragraphs 2-4 of the outstanding Office Action, the Examiner has rejected claims 15-38 under 35 U.S.C. 112, first paragraph as failing to comply with the written description requirement. Applicant has removed the language objected to by the Examiner from the independent claims, and therefore requests that the rejection of these claims under 35 U.S.C. 112 be withdrawn.

In a prior Final Office Action, dated April 15, 2003, the Examiner stated in part, that "Kanno's training digital images are of high resolution (and therefore contain a high resolution component as required by the claim). While Kanno's invention does use interpolation to convert a low resolution image into a high resolution image (column 1, lines 35-37); note that Kanno uses the equivalent term "density"), …." As described below, each of the independent claims recites that class data is obtained by learning, at least a training digital image signal having a high quality. While Kanno teaches obtaining image data from a high resolution image, Kanno does not teach obtaining class data (parameters) from a high quality image. As is shown at column 8, line 49 – column 4, line 28, and the following discussion, the pending application discloses the generation of parameter data as class data, which may later in turn be used to generate picture data. This parameter (or class) data is not shown in Kanno. Thus, Kanno fails to teach the claimed invention.

no only
15 & 23.

00175887

At paragraph 3 of the prior Final Office Action, the Examiner rejected claims 15, 17, 19, 21, 22, 33, 35-36 and 38 under 35 U.S.C. §103(a) as being unpatentable over Kanno et al. (U.S. Patent No. 5,229,868) in view of Matsumura (U.S. Patent No. 5,148,499). Applicant submits that rejection of these claims would be improper.

Each of the rejected pending independent claims recites that class data is obtained by learning, at least a training digital image having a high quality. Therefore, because the combination of references relied upon by the Examiner fails to depict this feature as claimed in the independent claims noted above, Applicant respectfully submits that the rejection of independent claims 15, 19, 33 and 36 under 35 U.S.C. §103(a) would be improper.

Furthermore, dependent claims 17, 21, 22, 35 and 38 depend, either directly or indirectly, from one of independent claims 15, 19, 33 or 36, and are therefore allowable as depending from allowable independent base claims. Additionally, each of these claims presents an independently patentable combination in and of its own right, and is therefore patentable for this additional reason. Applicant therefore similarly submits that the rejection of claims 17, 21, 22, 35 and 38 under 35 U.S.C. §102(e) would be improper.

At paragraph 4 of the prior Final Office Action, the Examiner rejected claims 18, 23, 25, 26, 27, 30 and 32 under 35 U.S.C. §103(a) as being unpatentable over Kanno et al. and Matsumura, and further in view of Collins (U.S. Patent No. 4,587,556). Applicant submits that the rejection of these claims would be improper.

Independent claims 23, 27 and 30 include limitations similar to those noted above with respect to independent claims 15, 19, 33 and 36. Because Collins fails to cure the defects of Kanno et al. and Matsumura noted above, Applicant submits that independent claims 23, 27 and 30 are allowable over the combination of prior art relied upon by the Examiner, and therefore respectfully submits that the rejection of claims 23, 27 and 30 under 35 U.S.C. §103(a) would be

improper.

Furthermore, claims 18, 25, 26, 29 and 32 depend, either directly or indirectly from an independent allowable claim, and are therefore allowable as depending from an allowable independent base claim. Additionally, each of these claims depicts an independently patentable combination in and of its own right. For these reasons, Applicant respectfully submits that the rejection of claims 18, 25, 26, 29 and 32 under 35 U.S.C. §103(a) would be improper.

At paragraph 5 of the prior Final Office Action, the Examiner rejected claims 16, 20, 34 and 37 under 35 U.S.C. §103(a) as being unpatentable over Kanno et al. and Matsumura and further in view of Tararine et al. (U.S. Patent No. 5,048,102). Applicant submits that the rejection of these claims would be improper.

Claims 16, 20, 34 and 37 each depend from one of the independent claims noted above, and therefore is allowable as depending from an allowable independent base claim. Additionally, because Tararine et al. fails to cure the defects noted above with respect to Kanno et al. and Matsumura, Applicant submits that each of these claims also presents an independently patentable combination in and of its own right. Applicant therefore respectfully submits that the rejection of claims 16, 20, 34 and 37 under 35 U.S.C. §103(a) would be improper.

At paragraph 6 of the prior Final Office Action, the Examiner rejected claims 24, 28, 29 and 31 under 35 U.S.C. §103(a) as being unpatentable over Kanno et al., Matsumura and Collins as applied to claim 23, and further in view of Tararine et al. Applicant submits that the rejection of these claims would be improper.

Claims 24, 28, 29 and 31 each depends from one of the independent claims noted above, and is therefore allowable as depending from an allowable independent base claim. Additionally, because Tararine et al. fails to cure the defects noted above with respect to Kanno et al., Matsumura and Collins, Applicant submits that each of these claims presents an independently

patentable combination in its own right. Applicant therefore respectfully submits that the rejection of claims 24, 28, 29 and 31 under 35 U.S.C. §103(a) would be improper.

Applicant notes with appreciation the notice that claims 1-14 are allowable over the prior art of record. To the extent the Examiner's stated reasons for allowability imply or are construed to mean that the claims are allowable over the prior art of record because the Examiner believes the claims should be interpreted to include one or more features or limitations not recited therein, Applicant's attorney disagrees with such an interpretation. It is the intent of Applicant, by his attorney, to construe the allowed claims so as to cover the invention disclosed in the instant application and all equivalents to which the claimed invention is entitled.

CONCLUSION

Statements appearing above in respect to the disclosures and the cited references represent the present opinion of Applicant's undersigned attorney and, in the event that the Examiner disagrees with any of such opinions, it is respectfully requested that the Examiner specifically indicate those portions of the reference providing a basis for a contrary view.

Applicant has made a diligent effort to place claims 15-38 in condition for allowance, and notice of the allowance of these claims in addition to claims 1-14 is earnestly solicited. If the Examiner is unable to issue a Notice of Allowance regarding these claims, the Examiner is requested to contact the undersigned attorney in order to discuss any further outstanding issues.

Early and favorable consideration is respectfully requested.

Please charge additional fees incurred by reason of this response or credit any overpayment to Deposit Account No. 50-0320.

Respectfully submitted,

Attorneys for Applicant

By William Frommer

William S. Frommer
Reg. No. 25,506
Tel. No. (212) 588-0800

VERSION WITH MARKINGS SHOWING CHANGES MADE

IN THE CLAIMS:

Claims 15, 19, 23, 27, 30, 33 and 36 have been amended as follows:

15. (Five Times Amended) Digital signal conversion apparatus for converting a first digital image signal to a second digital image signal having a ~~high resolution component, said second digital image signal being independent from said first digital image signal and being generated other than by interpolation thereof,~~ quality higher than that of the first digital image signal, comprising:

a memory for storing class data for respective classes at addresses corresponding to said respective classes, said class data obtained by learning with at least a training digital image signal having ~~said high resolution component~~ a quality higher than that of the first digital image signal;

means for receiving said first digital image signal including pixel data representing pixel values;

means for clustering a plurality of pixel data of said first digital image signal adjacent to a pixel data of said second digital image signal to produce a class;

means for retrieving said class data from one of said addresses of said memory corresponding to said class of said first digital image signal; and

means for generating all of pixel data, representing pixel values of said second digital image signal, in the same manner in accordance with a common algorithm based upon at least said retrieved class data.

19. (Five Times Amended) A digital signal data conversion method for converting a first digital image signal to a second digital image signal having a high resolution component, ~~said second digital image signal being independent from said first digital image signal and being generated~~

~~other than by interpolation thereof;~~ comprising the steps of:

storing class data for respective classes at addresses in a memory corresponding to said respective classes, said class data obtained by learning with at least a training digital image signal having said high resolution component;

receiving said first digital image signal including pixel data representing pixel values;

clustering a plurality of pixel data of said first digital image signal adjacent to a pixel data of said second digital image signal to produce a class;

retrieving said class data from one of said addresses of said memory corresponding to said class of said first digital video signal; and

generating all of pixel data, representing pixel values of said second digital image signal, in the same manner in accordance with a common algorithm based upon at least said retrieved class data.

23. (Five Times Amended) Digital signal conversion apparatus for converting a digital video signal admitting of a first standard into a digital video signal admitting of a second standard, a first ~~resolution~~ quality of said digital video signal admitting of said first standard being lower than a second ~~resolution~~ quality of said digital video signal admitting of said second standard, ~~said digital video signal admitting of said second standard being independent from said digital video signal admitting of said first standard and being generated other than by interpolation thereof;~~ comprising:

a memory for storing class data for respective classes at addresses corresponding to said respective classes, said class data obtained by learning with at least a training digital video signal admitting of said second standard having said second ~~resolution~~ quality;

means for receiving an input digital video signal including pixel data and admitting of said first standard;

means for clustering a plurality of pixel data of said input digital video signal adjacent to a pixel data of a second digital video signal to produce a class;

means for retrieving said class data from one of said addresses of said memory corresponding to said class of said input digital video signal admitting of said first standard; and

means for generating all of pixel data, representing pixel values of said digital video signal admitting of said second standard, in the same manner in accordance with a common algorithm based upon at least said class data which has been retrieved.

27. (Five Times Amended) Digital signal conversion apparatus for converting a standard definition digital video signal to a high definition digital video signal, ~~said high definition digital video signal being independent from said standard definition video signal and being generated other than by interpolation thereof,~~ comprising:

a memory for storing class data for respective classes at addresses corresponding to said respective classes, said class data obtained by learning with at least a training high definition video signal;

means for receiving a standard definition digital video signal having pixel data representing pixel values;

means for clustering a plurality of pixel data of said standard definition digital video signal adjacent to a pixel data of a second digital video signal to produce a class;

means for retrieving said class data from one of said addresses of said memory corresponding to said class of said standard definition digital video signal; and

means for generating all of pixel data, representing pixel values of a high definition digital video signal, in the same manner in accordance with a common algorithm based upon at least said retrieved class data.

30. (Five Times Amended) A digital signal conversion method, comprising the steps of:

storing class data for respective classes at addresses in a memory corresponding to said respective classes, said class data obtained by learning with at least a training high definition digital video signal;

receiving a standard definition digital video signal having pixel data representing pixel values~~,~~ ~~said high definition digital video signal being independent from said standard definition video signal and being generated other than by interpolation thereof~~;

clustering a plurality of pixel data of said standard definition digital video signal adjacent to a pixel data of a second digital video signal to produce a class;

retrieving said stored class data from one of said addresses corresponding to said class of said standard definition digital video signal; and

generating all of pixel data, representing pixel values of a second output digital video signal, in the same manner in accordance with a common algorithm based upon at least said retrieved class data.

33. (Five Times Amended) Digital data conversion apparatus for converting a first digital image signal to a second digital image signal having a high resolution component, ~~said second digital image signal being independent from said first digital image signal and being generated other than by interpolation thereof,~~ comprising:

a memory for storing class data for respective classes at addresses corresponding to said respective classes, said class data obtained by learning with at least a training digital image data having said high resolution component;

means for receiving said first digital image signal including pixel data representing pixel values;

means for clustering a plurality of pixel data of said first digital image signal adjacent to a plurality of pixel data of said second digital image signal to produce a class, said class being used

to retrieve a class data to generate a plurality of pixel data representing pixel values of a second digital image signal;

means for retrieving said class data from addresses of said memory corresponding to said class of said first digital image signal; and

means for generating all of said pixel data, representing pixel values of said second digital image signal, in the same manner in accordance with a common algorithm based upon at least said retrieved class data.

36. (Five Times Amended) Digital data conversion method for converting a first digital image signal to a second digital image signal having a high resolution component, ~~said second digital image signal being independent from said first digital image signal and being generated other than by interpolation thereof,~~ comprising the steps of:

storing class data for respective classes at addresses in a memory corresponding to said respective classes, said class data obtained by learning with at least a training digital image data having said high resolution component;

receiving said first digital image signal including pixel data representing pixel values;

clustering a plurality of pixel data of said first digital image signal adjacent to a plurality of pixel data of said second digital image signal to produce a class, said class being used to retrieve a class data to generate a plurality of pixel data representing pixel values of a second digital image signal;

retrieving said class data from addresses of said memory corresponding to said class of said first digital image signal; and

generating all of said pixel data, representing pixel values of said second digital image signal, in the same manner in accordance with a common algorithm based upon said retrieved class data.